

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

Basin Outlook Reports

and Federal - State - Private Cooperative Snow Surveys

For more water supply and resource management information, contact:

How forecasts are made

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Soil Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

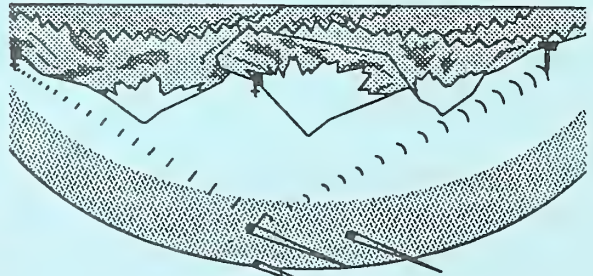
All programs and services of the USDA Soil Conservation Service are offered on a nondiscriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

A
U. S. DEPT. OF AGRICULTURE
NATIONAL AGRICULT. LIBRARY
CURRENT SERIAL RECORDS
BELTSVILLE MD
20705

W. 316 Boone Avenue
Suite 450
Spokane, WA 99201-2348

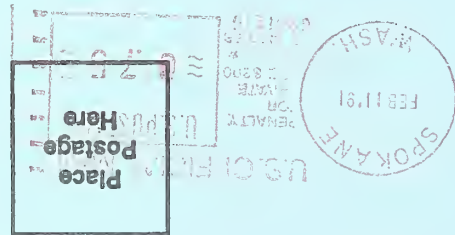


United States
Department of
Agriculture



February 1, 1992

Basin Outlook Reports



In addition to basin outlook reports, a Water Supply Forecast for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 248, Portland, OR 97209-3489.

Issued by

William (Bill) Richards
Chief
Soil Conservation Service
U.S. Department of Agriculture

Released by

Lynn A. Brown
State Conservationist
Soil Conservation Service
Spokane, Washington

75 MEM.
470 004



WASHINGTON WATER SUPPLY OUTLOOK

FEBRUARY 1992



GENERAL OUTLOOK:

WASHINGTON WATER SUPPLY OUTLOOK REPORT CURRENT AS OF 2/10/92
1992: Warm temperatures and heavy rainfall brought flooding to several Westside streams during January. Temperatures were above normal and varied from three degrees above in the Olympic Basin to seven degrees above in the Okanogan Basin. The snowpack varies from 36% in the Elwah River Basin to 129% in the Chelan Basin. Washington's SNOTEL sites were averaging 91% of normal snowpack on February 1 (by February 7, the state wide average was 90%). January precipitation was 97% of normal state wide and varied from 63% of average in the Walla Walla Basin to 157% in the Olympic Basin. Year-to-date precipitation varies from 66% in the Okanogan to 114% in the Walla Walla Basin. February 1 reservoir storage is generally good, with reservoirs in the Yakima Basin at 92% of average and 55% of capacity. Forecasts for 1992 runoff vary from 100% of average for the Bumping River to 69% for the Snake River below Lower Granit Dam. January streamflows varied from 27% of normal on the Walla Walla River near Milton Freewater, Oregon, to 111% on the Skagit River.

SNOWPACK:

The Portland computer system has changed to a 30 year average 1961-1990. This has caused a rise in the Washington snowpack as to percent of normal because four of the past five years were low snowfall years. Snowpack varies over the state from 129% of normal in the Chelan Basin to 36% in the Elwah River in the Olympic Basin. Some snowpack along the west slopes of the Cascade Mountains includes the Green River with 66%, and the Skagit 119%. Snowpack in the Okanogan is at 90%, and the Spokane at 91%. SNOTEL sites in Washington have a snowpack 91% of average for February 1, state wide. Maximum snow cover, with a water content of 47.5 inches is at Paradise on Mount Rainier. This site would normally have 38.5 inches of water content on February 1.

PRECIPITATION:








January precipitation from National Weather Service stations was 97% of average state wide. The year-to-date precipitation state wide is 89% it varied from 114% of normal in the Walla Walla Basin to 66% in the Okanogan Basin. January precipitation varied from 157% of average in the Olympic Basin, to 63% in the Walla Walla Basin. SNOTEL sites in Washington showed high elevation year-to-date precipitation values to be 77%. Maximum year-to-date precipitation was at the June Lake SNOTEL site near Mt. St. Helens, with 77.0 inches since October 1, 1991; normal for this site would be 82.0 inches.

RESERVOIR:

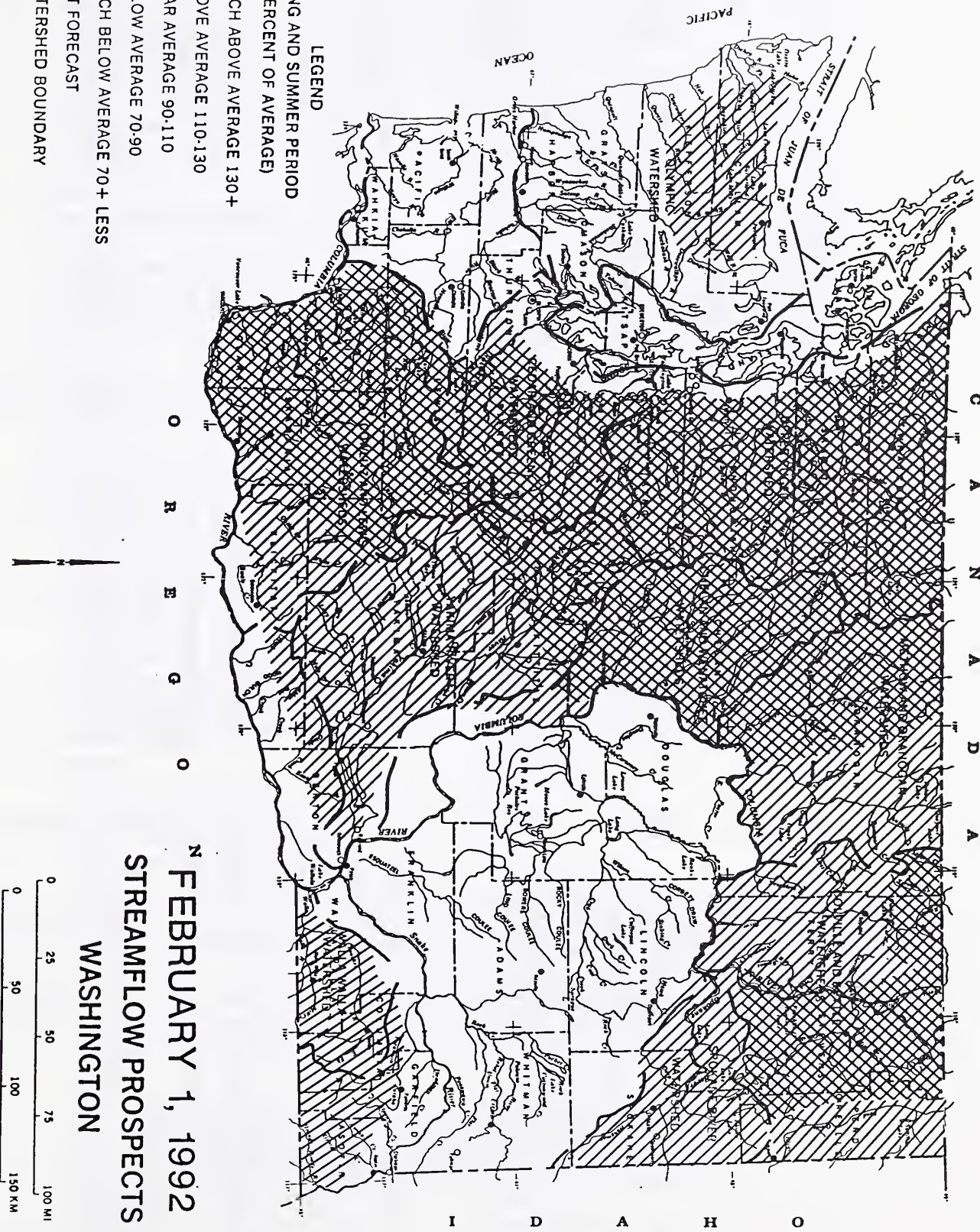
Reservoir storage in Washington is generally good for February 1. Reservoir storage in the Yakima Basin was 590,600 acre feet, 92% of normal. Storage at other reservoirs include Roosevelt at 134% of average, and the Okanogan reservoirs at 113% of February 1 normal. The power generation reservoirs contain the following: Coeur d'Alene Lake, 160,300 acre feet, or 78% of normal; Chelan Lake, 245,100 acre feet, 54% of average and 36% of capacity, and Ross Lake at 98% of average, and 72% of capacity.

STREAMFLOW:

January streamflows were generally below average in Washington, however the highest in the state, the Columbia River, at Birchbank and the Skagit River at Newhalem were at 111%. Some minor flooding occurred along the Chehalis and Snohomish rivers during January. Other streamflows were the following percent of normal: the Cowlitz River, 74%; the Walla Walla River which at 27% was the lowest in the state; the Spokane River, 61%; the Yakima at the Parker, 71%. The Wenatchee River at 71% and the Methow with 72%. The Okanogan River was 75%. Forecasts for summer streamflow are for below to near average and vary from 100% of average for Bumping River to 69% of normal for the Snake River below Lower Granit Dam. February forecasts for some west side streams include: Cedar River, 86%; Skagit River, 92%; and the Dungeness River, 85%. Some east side streams include the Yakima River at Parker, 87%; the Chelan River, 86%; and the Colville River, 96%.

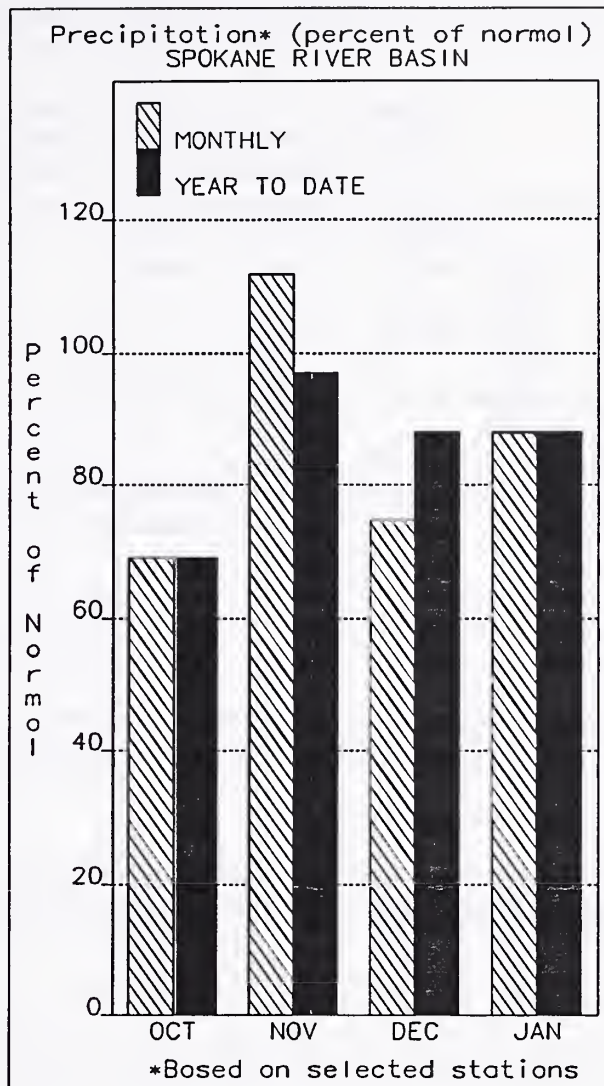
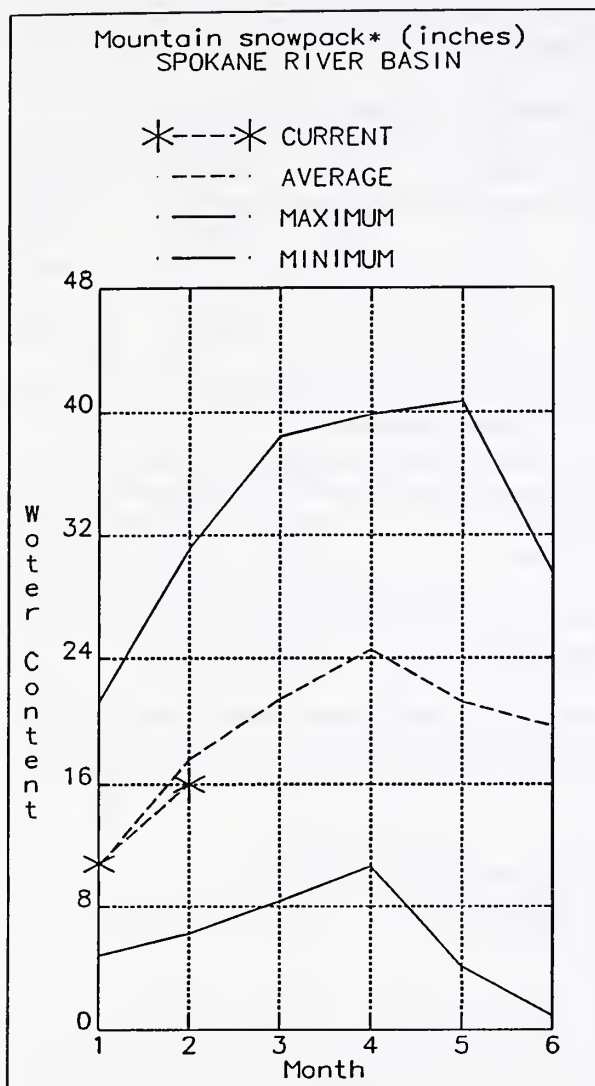
- LEGEND**
- SPRING AND SUMMER PERIOD
(PERCENT OF AVERAGE)**
-  MUCH ABOVE AVERAGE 130+
 -  ABOVE AVERAGE 110-130
 -  NEAR AVERAGE 90-110
 -  BELOW AVERAGE 70-90
 -  MUCH BELOW AVERAGE 70+ LESS
 -  NOT FORECAST
 -  WATERSHED BOUNDARY

SOURCE: Data compiled by SCS
Field Personnel.



FEBRUARY 1, 1992
STREAMFLOW PROSPECTS
WASHINGTON

[illegible]



SPOKANE RIVER BASIN

February 1, 1992: The February 1 forecasts for summer runoff within the Spokane River Basin are 94% of normal. The forecast is based on a snowpack that is 91% of average and a water year-to-date precipitation value 85% of normal. Precipitation for January was 80% of average. Temperatures in the basin were 5 degrees above normal during January. Streamflow on the Spokane River was 61% of normal for January. February 1 storage in Coeur d'Alene Lake was 160,300 acre feet, 78% of normal.

For more information contact your local
Soil Conservation Service office.

SPOKANE RIVER BASIN
Streamflow Forecasts - February 1, 1992

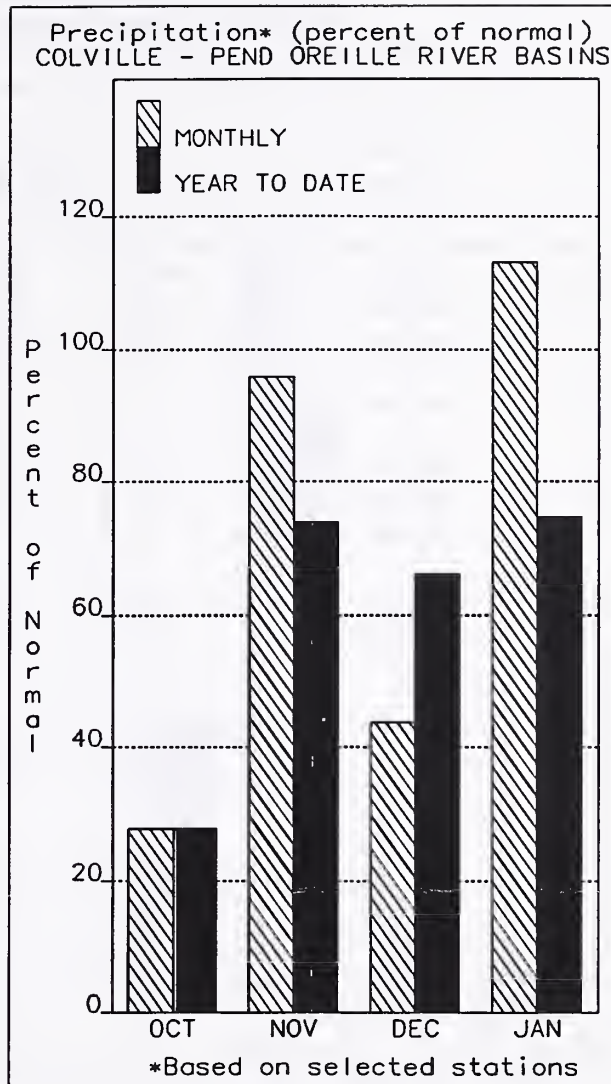
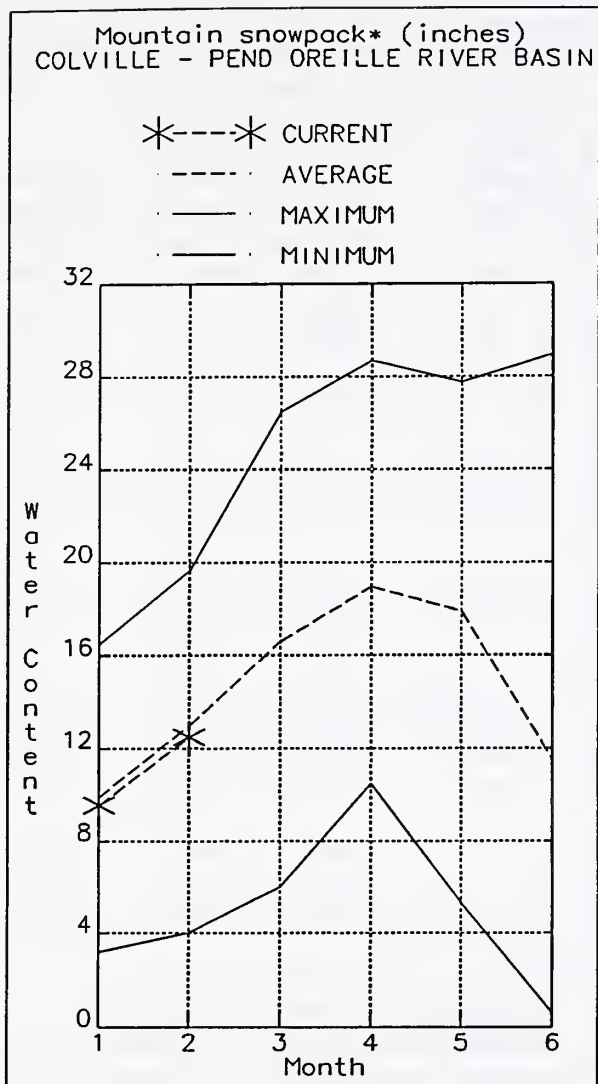
		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SPOKANE nr Post Falls (1,2)	APR-SEP	1360	1920	2510	92	3100	3670	2720
	APR-JUL	600	1850	2420	92	2990	4240	2627
SPOKANE at Long Lake (2)	APR-JUL	1150		2760	94		4380	2937

SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of January					SPOKANE RIVER BASIN Watershed Snowpack Analysis - February 1, 1992			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
COEUR D'ALENE	291.2	160.3	162.2	205.4	Spokane River	6	93	91

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.



COLVILLE - PEND OREILLE RIVER BASINS: 💧

February 1, 1992: February 1 snow cover is 90% of average on the Pend Oreille, 104% on the Kettle and 71% on the Colville River. Snowpack at Bunchgrass Meadow SNOTEL site was 21.6 inches of water. The average February 1 reading is 18.8. Precipitation during January was 109% of average, bringing the water year-to-date to 72% of normal. January streamflow was 70% of normal on the Pend Oreille River, 111% on the Columbia at the International Boundary, and 56% on the Kettle River. The forecast for the Kettle River streamflow is 95% of normal, the Pend Oreille, 82%, and the Colville River, 96% of normal for the summer runoff period. Temperatures were seven degrees above normal for January.

For more information contact your local
Soil Conservation Service office.

COLVILLE - PEND OREILLE RIVER BASINS
Streamflow Forecasts - February 1, 1992

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		===== Chance Of Exceeding * =====						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
PEND OREILLE bl Box Canyon (1,2)	APR-SEP	8320	10800	12000	82	13200	16000	14590
	APR-JUL	7520	9910	11000	82	12100	14500	13380
	APR-JUN	6500	8560	9490	82	10400	12500	11570
CHAMOKANE CK nr Long Lake	MAY-AUG	1.5	5.7	8.5	90	11.3	15.5	9.4
COLVILLE at Kettle Falls	APR-SEP	69	103	126	96	149	183	131
	APR-JUL	62	94	115	96	136	168	120
	APR-JUN	60	88	107	96	126	155	111
KETTLE nr Laurier	APR-SEP	1020	1460	1760	95	2060	2500	1853
	APR-JUL	970	1390	1670	95	1950	2370	1760
	APR-JUN	885	1260	1510	95	1760	2140	1585
COLUMBIA at Birchbank (1,2)	APR-SEP	36600	41500	43800	100	46100	51000	43810
	APR-JUL	29300	33300	35100	100	36900	40900	35140
	APR-JUN	21500	24400	25700	100	27000	29900	25670
COLUMBIA at Grand Coulee Dm (1,2)	APR-SEP	48800	57400	61300	95	65200	73800	64780
	APR-JUL	41100	48300	51600	95	54900	62100	54500
	APR-JUN	32500	38100	40600	95	43100	48700	42730

COLVILLE - PEND OREILLE RIVER BASINS
Reservoir Storage (1000 AF) - End of January

COLVILLE - PEND OREILLE RIVER BASINS
Watershed Snowpack Analysis - February 1, 1992

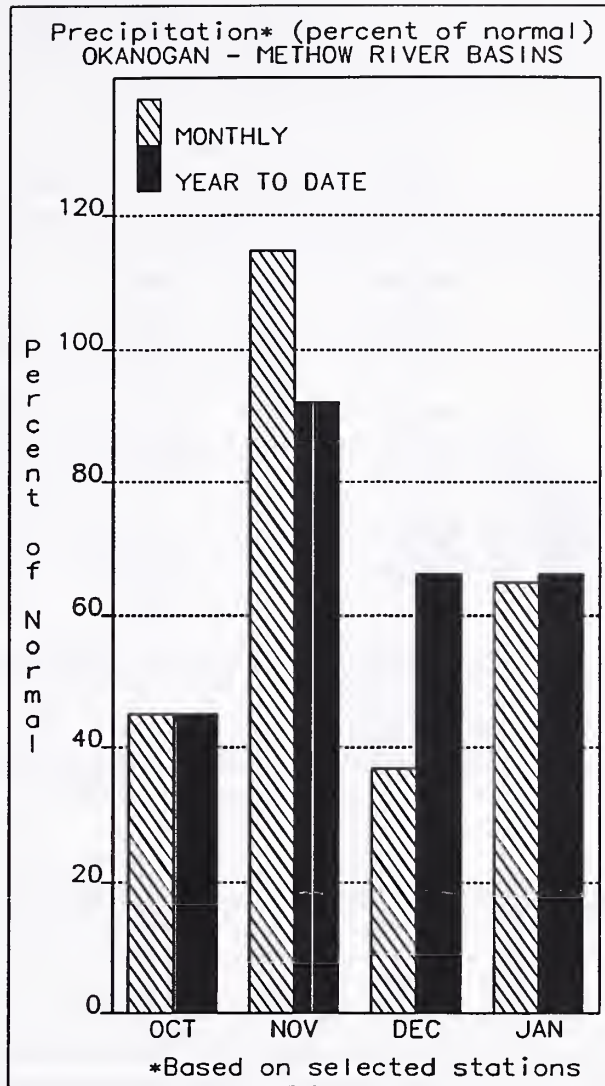
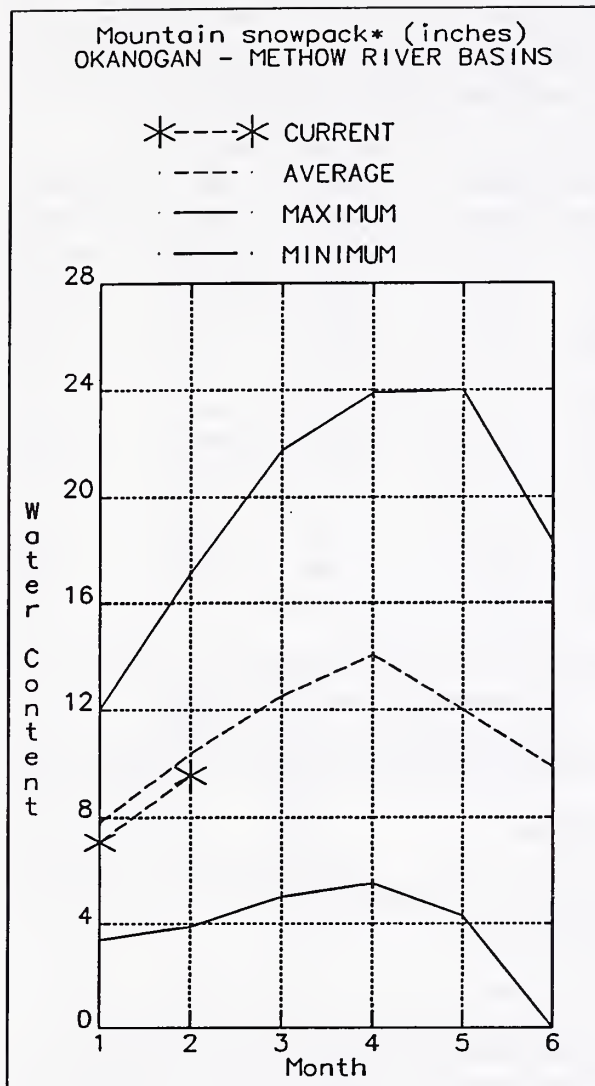
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROOSEVELT	5232.0	5006.9	4395.7	3749.0	Colville River	1	183	71
BANKS	715.0	680.2	---	599.0	Pend Oreille River	6	81	90
					Kettle River	7	98	107

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



OKANOGAN - METHOW RIVER BASINS: ♡

February 1, 1992: February 1 snow cover was 90% of average on the Okanogan, and 106% for the Methow Basin. January precipitation in the Okanogan-Methow was 65% of normal, with water year-to-date at 66% of average. January streamflow on the Methow River was 72% of normal, 75% on the Okanogan River, and 101% on the Similkameen. Snow water content at the Harts Pass SNOTEL, elevation 6500 feet, was 34.1 inches. Summer runoff forecast for the Okanogan River is 87% of normal; the Similkameen River, 90%, and the Methow River, 90% of normal. Temperatures were seven degrees above normal for the month. Storage in the Conconully Reservoirs is 15,600 acre feet, which is 66% of capacity and 113% of February 1 average.

For more information contact your local
Soil Conservation Service office.

OKANOGAN - METHOW RIVER BASINS
Streamflow Forecasts - February 1, 1992

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SIMILKAMEEN nr Nighthawk (1)	APR-SEP	670	1160	1260	90	1360	1850	1399
	APR-JUL	885	1080	1170	90	1260	1460	1304
	APR-JUN	760	925	1000	90	1070	1240	1113
OKANOGAN RIVER nr Tonasket (1)	APR-SEP	615	1210	1420	87	1630	2220	1624
	APR-JUL	670	1080	1260	86	1440	1850	1467
	APR-JUN	615	920	1060	86	1200	1510	1234
METHOW RIVER nr Pateros (1)	APR-SEP	500	740	850	90	960	1200	942
	APR-JUL	460	685	790	90	895	1120	873
	APR-JUN	385	590	685	92	780	985	746

OKANOGAN - METHOW RIVER BASINS
Reservoir Storage (1000 AF) - End of January

OKANOGAN - METHOW RIVER BASINS
Watershed Snowpack Analysis - February 1, 1992

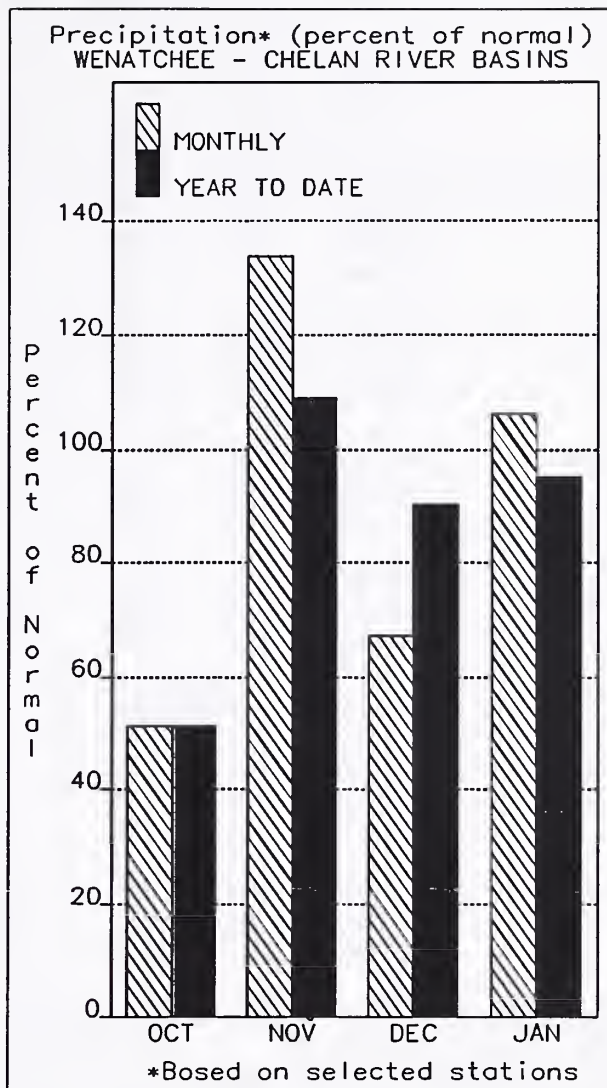
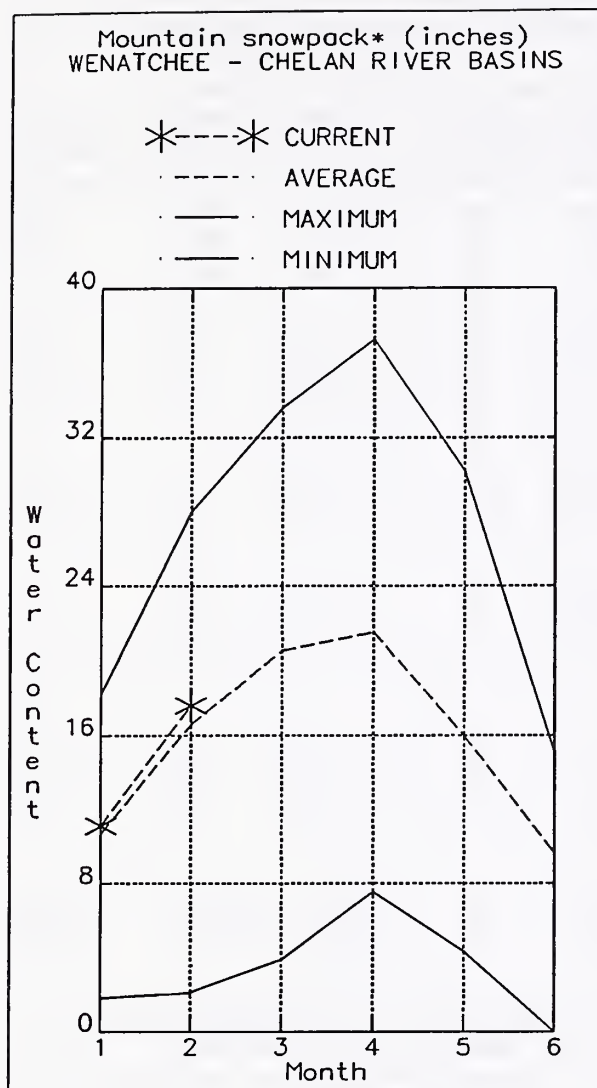
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CONCONULLY LAKE (SALMON)	10.5	8.2	9.7	7.5	Okanogan River	22	66	89
CONCONULLY RESERVOIR	13.0	7.4	8.9	6.3	Methow River	4	82	106

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



WENATCHEE - CHELAN RIVER BASINS:

February 1, 1992: February 1 snowpack in the Wenatchee Basin is 89%; the Chelan Basin 129% and the Entiat Basin, 104%. Snowpack continues low along Colockum Ridge, with Stemilt Creek at 80%. Reservoir storage in Lake Chelan is 245,100 acre feet or 54% of February 1 average and 36% of capacity. Lyman Lake SNOTEL had the most snow water with 48.2 inches of water; this site would normally have 39.0 inches. Runoff for the Entiat River is forecast to be 93% of normal for the summer. Summer forecasts for the Chelan River are for 94%, Wenatchee River's runoff 96%, and 90% on the Squilchuck-Stemilt. Streamflow for January on the Chelan River was 79% of average and the Wenatchee River was 71% of normal. Precipitation during January was 106% of normal in the basin and 95% for the year-to-date.

For more information contact your local
Soil Conservation Service office.

WENATCHEE - CHELAN RIVER BASINS
Streamflow Forecasts - February 1, 1992

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
CHELAN RIVER at Chelan (1)	APR-SEP	790	970	1090	94	1210	1380	1160
	APR-JUL	625	855	960	94	1060	1290	1024
	APR-JUN	495	675	755	93	835	1020	812
STEHEKIN R. at Stehekin	APR-SEP	620	715	785	95	855	955	827
	APR-JUL	525	610	665	95	720	805	701
	APR-JUN	405	465	510	95	555	615	538
ENTIAT RIVER nr Ardenvoir	APR-SEP	152	187	210	93	235	270	227
	APR-JUL	135	168	190	92	210	245	206
	APR-JUN	113	138	155	92	172	197	169
WENATCHEE R. at Peshastin	APR-SEP	1000	1340	1570	96	1800	2140	1636
	APR-JUL	920	1220	1430	96	1640	1940	1485
	APR-JUN	750	995	1160	96	1330	1570	1204
STEMILT nr Wenatchee (miners in)	MAY-SEP	78	105	124	90	143	171	138
ICICLE CREEK nr Leavenworth	APR-SEP	210	285	335	91	385	460	370
	APR-JUL	190	260	305	90	350	420	340
	APR-JUN	154	210	245	91	280	335	270
COLUMBIA R. bl Rock Island Dam (2)	APR-SEP	52800	61500	67000	95	72500	81000	70410
	APR-JUL	45200	52000	56700	95	61400	68200	59690
	APR-JUN	35600	41000	44600	95	48200	53600	46980

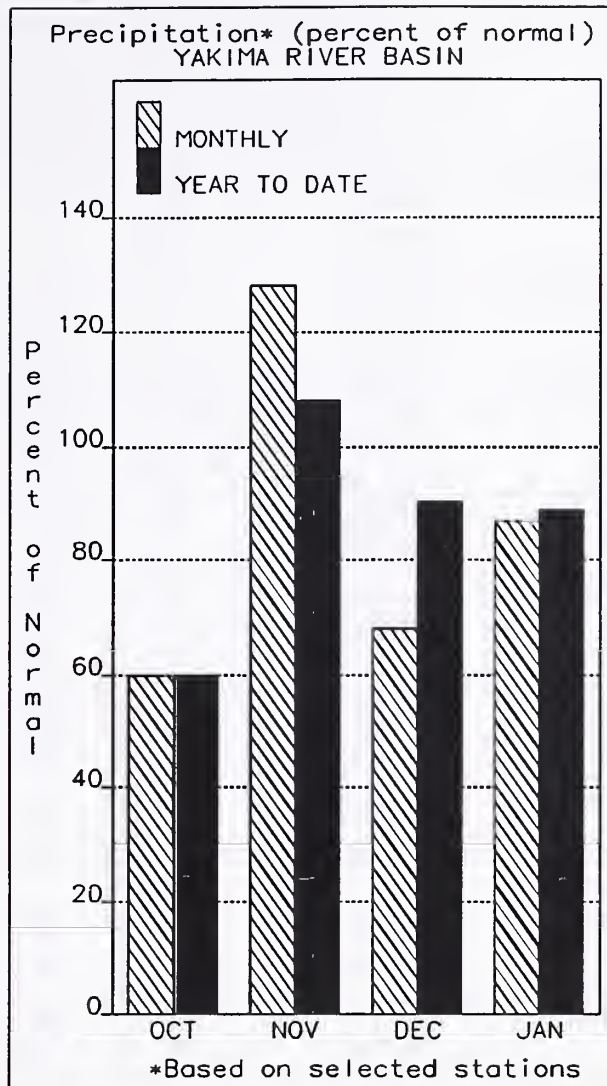
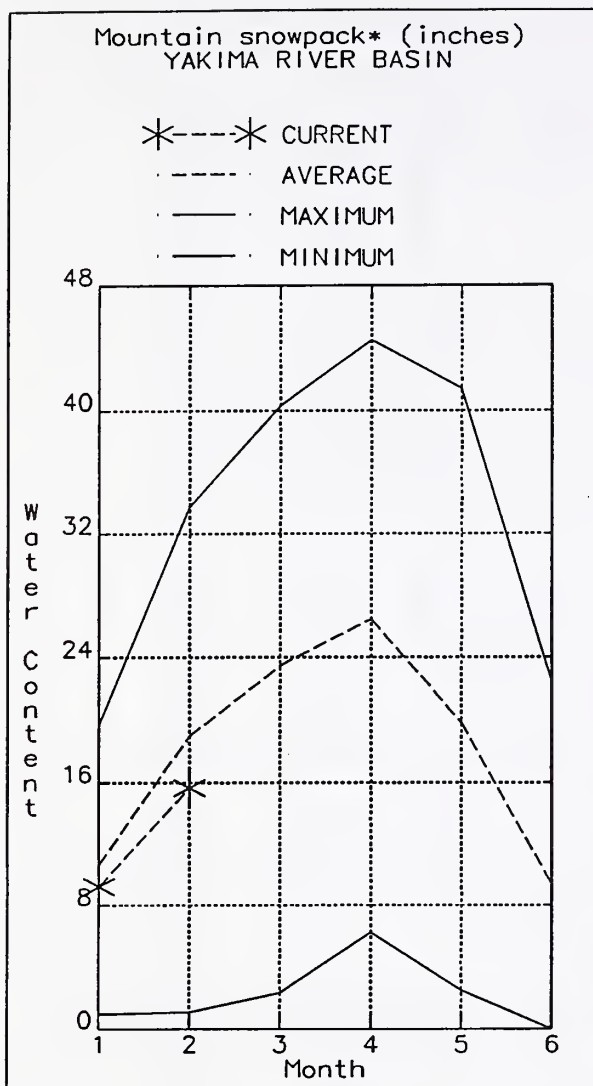
WENATCHEE - CHELAN RIVER BASINS Reservoir Storage (1000 AF) - End of January					WENATCHEE - CHELAN RIVER BASINS Watershed Snowpack Analysis - February 1, 1992			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CHELAN LAKE	676.1	245.1	503.1	450.6	Chelan Lake Basin	4	81	129
					Entiat River	2	114	82
					Wenatchee River	10	87	89
					Squilchuck Creek	0	0	0
					Stemilt Creek	2	105	79
					Colockum Creek	1	193	84

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



YAKIMA RIVER BASIN:

February 1, 1992: January precipitation was 87% of normal and 89% for the water year-to-date. The outlook for irrigation water for the summer is good with February 1 reservoir storage for the five major reservoirs at 590,600 acre feet, 92% of average. February 1 snowpack is 79% based upon 19 snow courses and SNOTEL readings. February 1 summer streamflow forecasts for the Yakima Basin vary throughout the basin as follows: the Yakima River at Cle Elum, 92 %; Naches River, 82%; the Yakima River at Martin, 90%, Ahtanum Creek, 96%, and Tieton River 84%. January streamflows were varied with the Yakima River at Parker 71% of normal, 93% on the Yakima near Cle Elum, and 64% on the Naches River. Temperatures were five degrees above average for January. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U. S. Bureau of Reclamation's forecast for the total water supply available which includes adjustments for reservoir operation and irrigation return flow.

For more information contact your local
Soil Conservation Service office.

YAKIMA RIVER BASIN
Streamflow Forecasts - February 1, 1992

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
=====								
YAKIMA RIVER at Martin (1)	APR-SEP	103	114	122	90	130	142	135
	APR-JUL	88	104	111	90	118	134	124
	APR-JUN	78	92	98	90	104	118	109
YAKIMA RIVER at Cle Elum (2)	APR-SEP	710	785	840	92	895	970	915
	APR-JUL	635	705	750	90	800	870	832
	APR-JUN	550	610	650	90	690	750	721
YAKIMA RIVER nr Parker (2)	APR-SEP	1180	1510	1730	87	1950	2270	1994
	APR-JUL	1070	1360	1550	86	1740	2030	1805
	APR-JUN	945	1200	1370	86	1540	1790	1597
KACHESS RIVER nr Easton (1)	APR-SEP	84	104	113	96	122	142	118
	APR-JUL	80	97	105	95	113	130	111
	APR-JUN	72	87	94	95	101	116	99
CLE ELUM RIVER nr Roslyn (1)	APR-SEP	380	420	450	100	480	520	448
	APR-JUL	325	380	405	99	430	485	409
	APR-JUN	330	375	398	96	420	465	346
BUMPING RIVER nr Nile (1)	APR-SEP	90	122	136	100	151	183	136
	APR-JUL	81	111	124	100	137	167	124
	APR-JUN	69	93	104	100	115	140	104
AMERICAN RIVER nr Nile	APR-SEP	82	100	112	95	124	142	118
	APR-JUL	76	93	104	95	115	132	109
	APR-JUN	64	78	87	95	96	110	92
TIETON RIVER at Tieton (1)	APR-SEP	137	175	200	84	225	265	237
	APR-JUL	100	148	170	85	192	240	200
	APR-JUN	82	121	138	85	156	194	162
NACHES RIVER nr Naches (2)	APR-SEP	465	610	705	85	800	940	832
	APR-JUL	425	550	640	85	730	855	755
	APR-JUN	375	485	560	86	635	745	651
AHTANUM CREEK nr Timpico (2)	APR-SEP	26	38	45	98	53	64	46
	APR-JUL	24	34	41	98	48	58	42
	APR-JUN	20	29	35	97	41	50	36

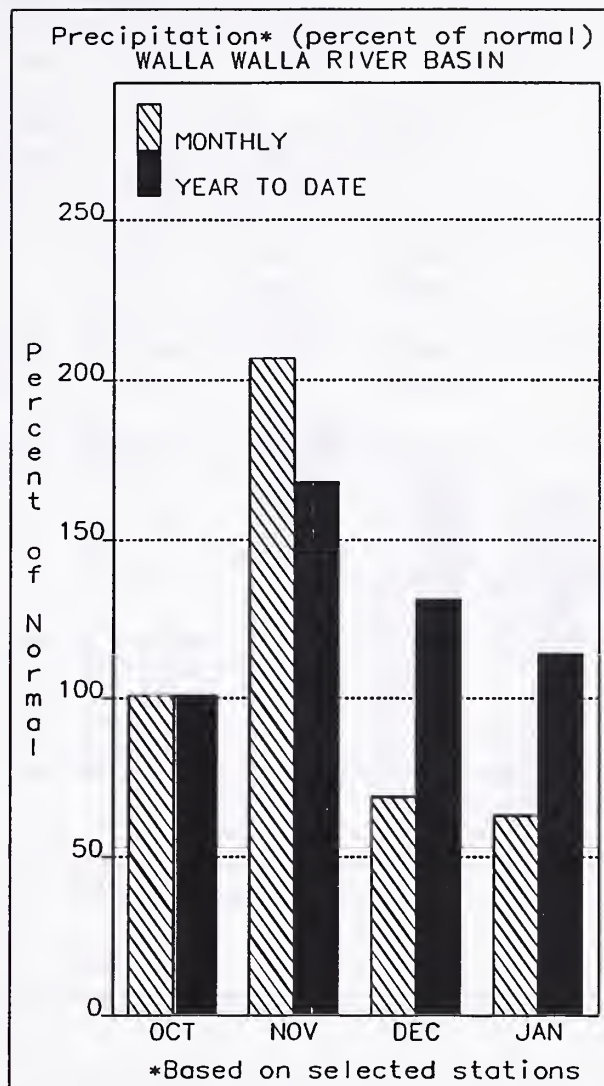
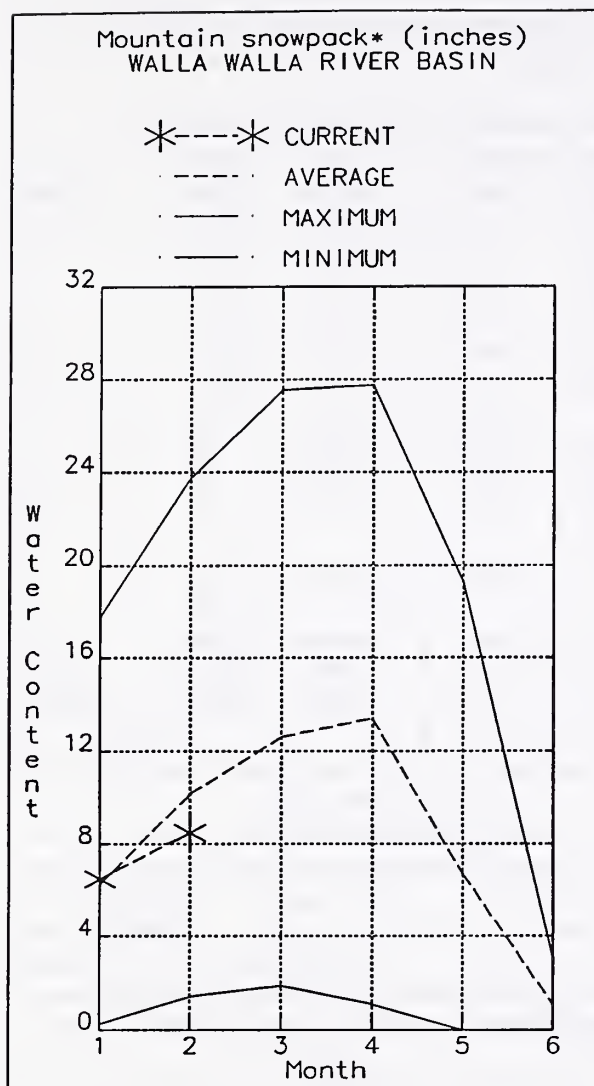
YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of January					YAKIMA RIVER BASIN Watershed Snowpack Analysis - February 1, 1992			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
KEECHELUS	157.8	97.2	116.7	96.0	Yakima River	20	110	83
KACHESS	239.0	148.3	194.8	170.0	Ahtanum Creek	2	113	72
CLE ELUM	436.9	256.4	340.4	251.0				
BUMPING LAKE	33.7	11.0	16.1	9.0				
RIMROCK	198.0	77.7	135.2	115.0				

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



WALLA WALLA RIVER BASIN:

February 1, 1992: January streamflow was 27% of normal on the Walla Walla River, 51% for the Snake River, and 49% on the Grande Ronde River near Troy. February 1 snowpack is at 84%. January precipitation was 63% of average, bringing the water year-to-date precipitation to 114% of normal. The forecast is for 80 % of average streamflow in the Walla Walla River for the coming summer, the Grande Ronde, 74%; Snake River, 69%, and 72% for Mill Creek. Temperatures were five degrees above average for January.

For more information contact your local
Soil Conservation Service office.

WALLA WALLA RIVER BASIN
Streamflow Forecasts - February 1, 1992

Forecast Point	Forecast Period	<<<===== Drier ===== Future Conditions ===== Wetter =====>>>						30-Yr Avg. (1000AF)
		===== Chance Of Exceeding * =====						
		90%	70%	50% (Most Probable)		30%	10%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
GRANDE RONDE at Troy (1)	MAR-JUL	520	915	1090	74	1270	1660	1471
	APR-SEP	460	815	975	74	1140	1490	1312
SNAKE bl Lower Granite Dam (1,2)	APR-JUL	5690	12100	15000	69	17900	24300	21650
	APR-SEP	6330	13500	16800	69	20100	27300	24360
MILL CREEK at Walla Walla	APR-SEP	4.2	9.0	12.3	72	15.6	20	17.1
	APR-JUL	4.1	8.9	12.2	72	15.5	20	16.9
	APR-JUN	4.0	8.8	12.0	72	15.2	20	16.7
SF WALLA WALLA nr Milton Freewater	APR-JUL	32	38	42	79	46	52	53
COLUMBIA R. at The Dalles (2)	APR-SEP	61300	84200	84200	85	84200	107000	98910
	APR-JUL	53000	64300	72000	85	79700	91000	84710
	APR-JUN	43200	52400	58600	85	64800	74000	68890

WALLA WALLA RIVER BASIN
Reservoir Storage (1000 AF) - End of January

WALLA WALLA RIVER BASIN
Watershed Snowpack Analysis - February 1, 1992

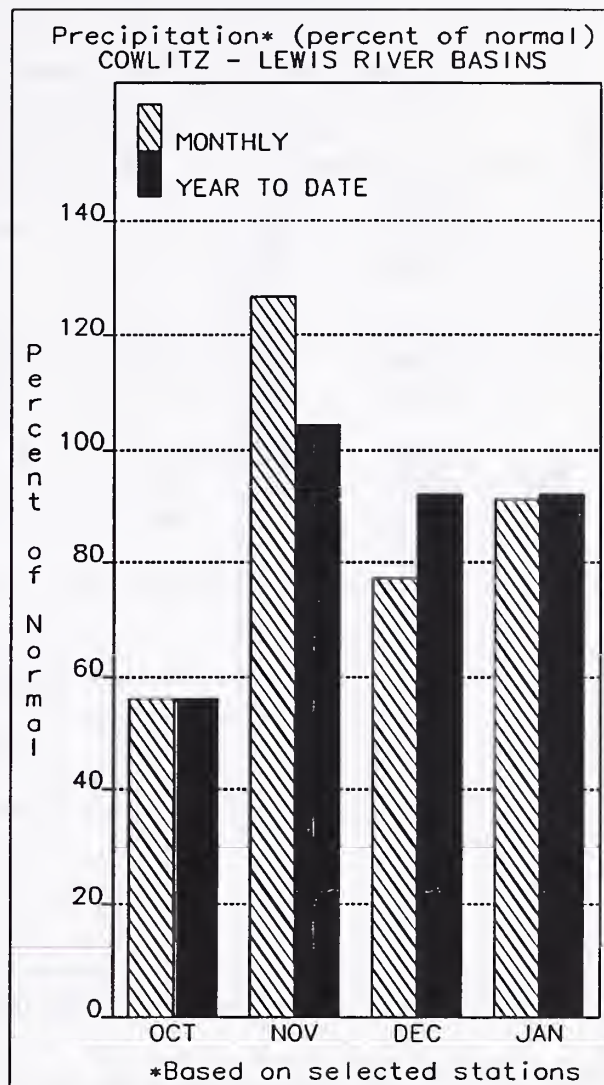
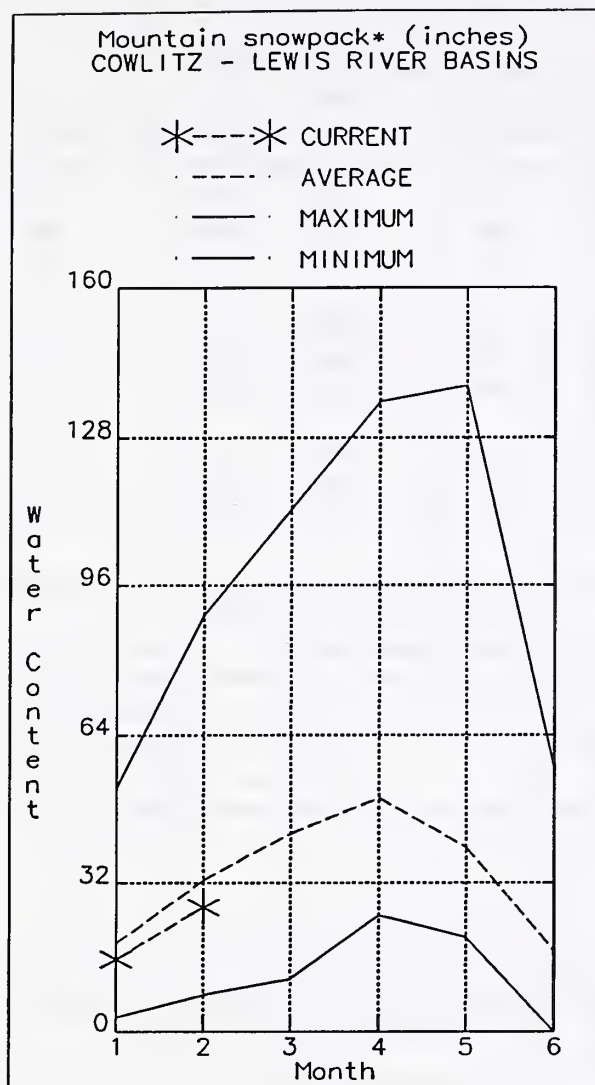
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Mill Creek	2	139	84

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



COWLITZ - LEWIS RIVER BASINS:

February 1, 1992: January precipitation was 91% of normal, bringing the water year-to-date precipitation to 92% of average. February 1 snow cover for the Cowlitz-Lewis River Basin is 74%. The Paradise Park SNOTEL contained the largest water content for the basin with 47.5 inches of water, normal February 1 water content is 38.5 inches. Forecasts for summer runoff in the Lewis River are 94%, and for the Cowlitz River, 94%. January streamflow on the Cowlitz River was 74% of average, and 78% on the Lewis River. Temperatures were five degrees above normal for January.

For more information contact your local
Soil Conservation Service office.

COWLITZ - LEWIS RIVER BASINS
Streamflow Forecasts - February 1, 1992

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		=====		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
LEWIS RIVER at Ariel (2)	APR-SEP	675	945	1130	94	1320	1590	1204
	APR-JUL	590	830	990	94	1150	1390	1051
	APR-JUN	525	730	875	94	1020	1230	933
COWLITZ R. bl Mayfield Dam (2)	APR-SEP	750	1520	1850	94	2190	2960	1970
	APR-JUL	905	1340	1630	94	1920	2360	1731
	APR-JUN	770	1140	1390	94	1640	2010	1477
COWLITZ R. at Castle Rock (2)	APR-SEP	1010	2200	2560	96	2920	4110	2667
	APR-JUL	1460	1920	2230	96	2540	3000	2325
	APR-JUN	1260	1650	1920	96	2190	2580	1995

COWLITZ - LEWIS RIVER BASINS
Reservoir Storage (1000 AF) - End of January

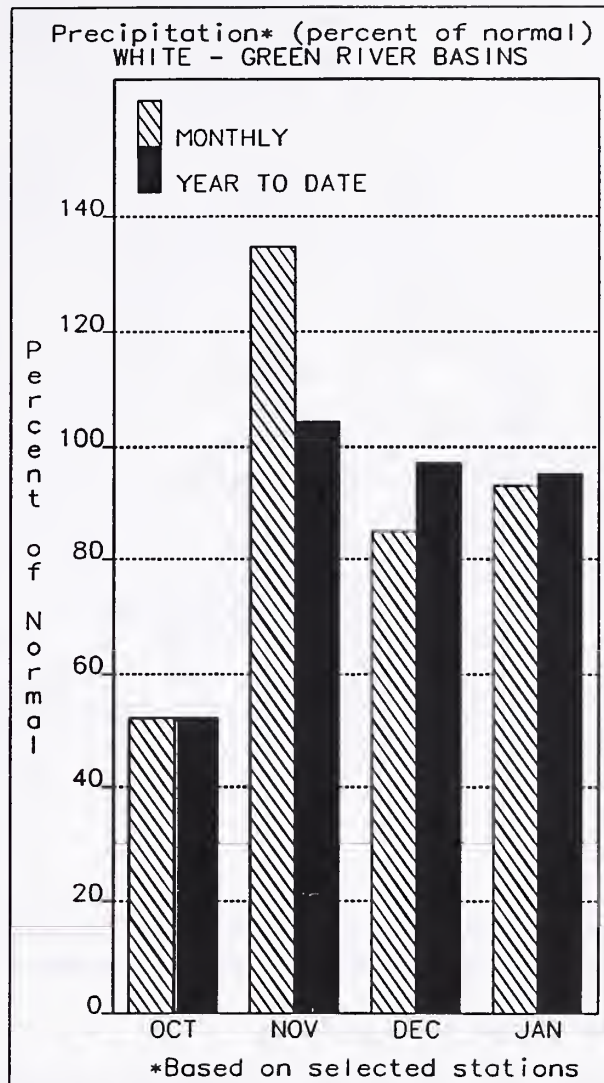
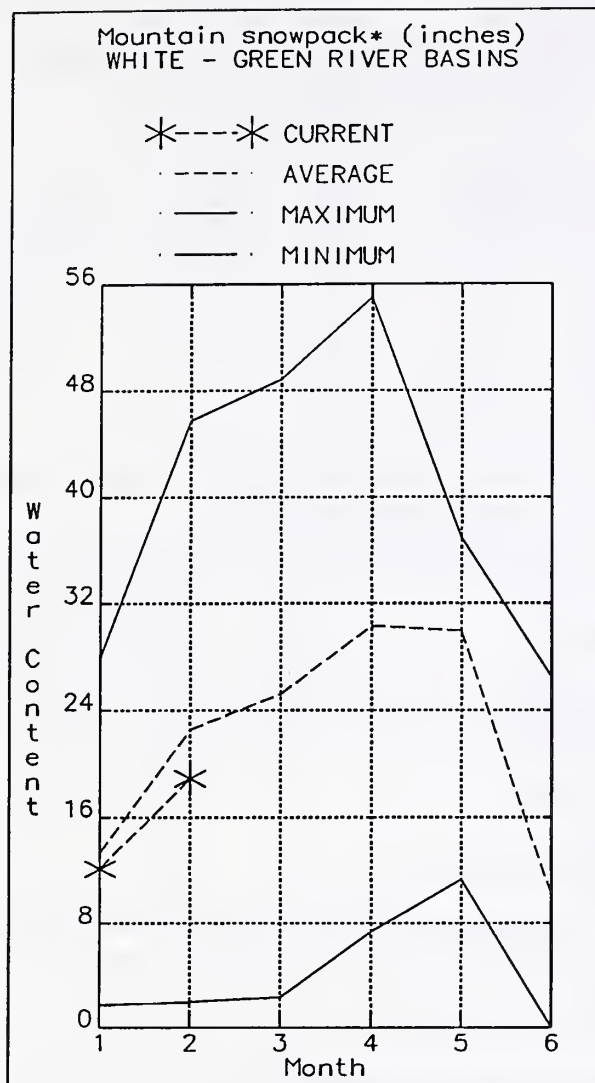
COWLITZ - LEWIS RIVER BASINS
Watershed Snowpack Analysis - February 1, 1992

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Cowlitz River	7	99	96
					Lewis River	4	73	52

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- 1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- 2) - The value is natural flow - actual flow may be affected by upstream water management.



WHITE - GREEN RIVER BASINS:

February 1, 1992: February 1 snowpack was 123% of normal on the White River and 66% in the Green Basin. Water content on February 1 at the Stampede Pass SNOTEL, at an elevation of 3860 feet, was 25.9 inches. This site has a February 1 average of 28.8 inches. January precipitation was 93% of normal, bringing the water year-to-date to 95% of average. Summer runoff is forecasted to be 95% on the Green River and 86% on the Cedar River. Temperatures were seven degrees above average for January.

For more information contact your local
Soil Conservation Service office.

WHITE - GREEN RIVER BASINS
Streamflow Forecasts - February 1, 1992

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
GREEN R bl Howard Hanson Dam (2)	APR-SEP	169	230	270	95	310	370	285
	APR-JUL	154	210	245	95	280	335	257
	APR-JUN	138	187	220	94	255	300	234
CEDAR RIVER nr Cedar Falls	APR-SEP	40	59	72	86	85	104	84

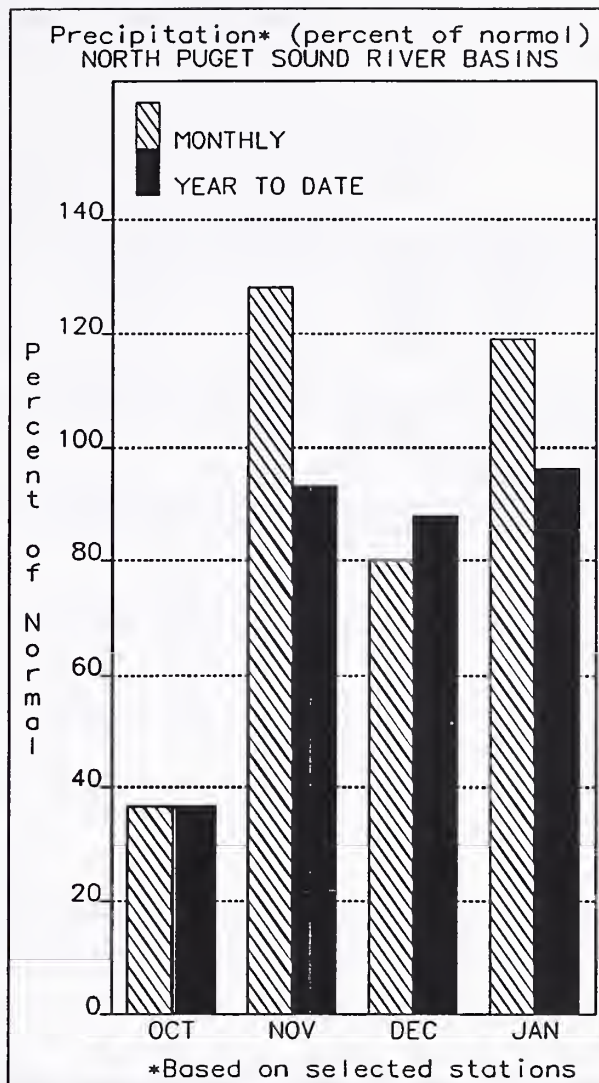
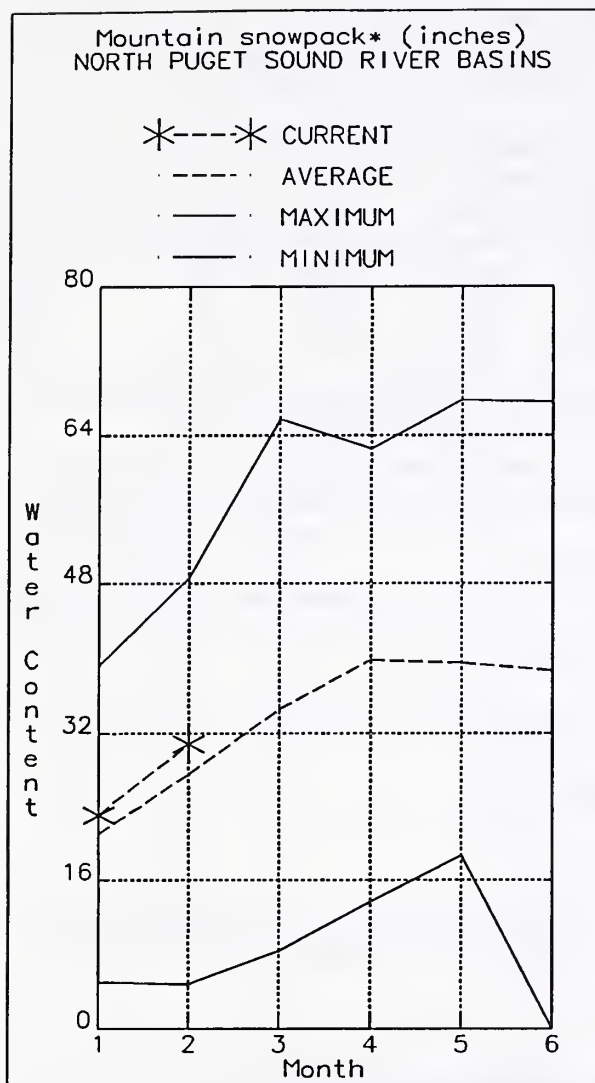
WHITE - GREEN RIVER BASINS Reservoir Storage (1000 AF) - End of January					WHITE - GREEN RIVER BASINS Watershed Snowpack Analysis - February 1, 1992			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					White River	3	160	116
					Green River	7	74	58
					Cedar River	0	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



NORTH PUGET SOUND RIVER BASINS:



February 1, 1992: January streamflow in the Skagit River was 111% of average. Forecast for the Skagit River streamflow is 92% of normal for the spring and summer period. February 1 snow cover in the Skagit Basin is 118% of normal. Rainy Pass SNOTEL at elevation 4780 feet, has 34.8 inches of water content; normal February 1 water content is 24.5 inches. February 1 reservoir storage is near average, with Ross Lake Reservoir at 98% of normal and 72% of capacity. Precipitation for January was 119% of average with a water year-to-date at 96% of normal. January temperatures were five degrees above normal.

For more information contact your local
Soil Conservation Service office.

NORTH PUGET SOUND RIVER BASINS
Streamflow Forecasts - February 1, 1992

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SKAGIT RIVER at Newhalem (2)	APR-SEP	1510	1800	2000	92	2200	2490	2185
	APR-JUL	1270	1510	1680	92	1850	2090	1830
	APR-JUN	985	1170	1300	92	1430	1610	1410

NORTH PUGET SOUND RIVER BASINS
Reservoir Storage (1000 AF) - End of January

NORTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - February 1, 1992

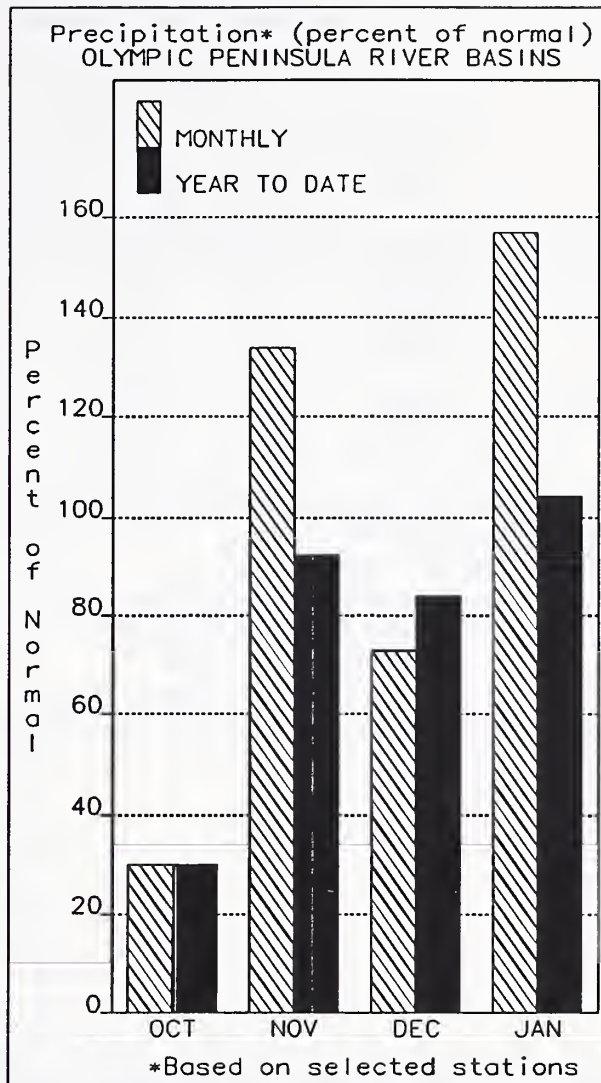
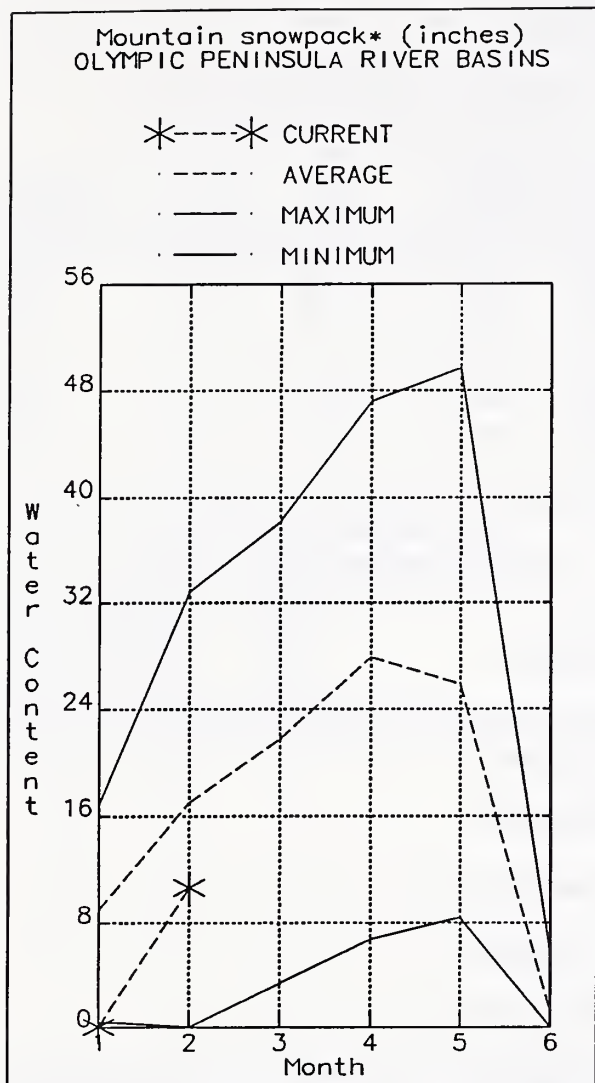
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	1017.0	1051.9	1033.9	Snoqualmie River	2	66	58
DIABLO RESERVOIR	90.6	87.8	83.1	84.2	Skykomish River	3	94	94
GORGE RESERVOIR	9.8	7.8	---	7.9	Skagit River	13	67	102
					Baker River	8	392	65

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.



OLYMPIC PENINSULA RIVER BASINS:

February 1, 1992: January precipitation was 157% of average, with water year-to-date precipitation accumulation at 104% of normal. Precipitation at the Quillayute WSO was 23.99 inches during January. February 1 snow cover in the Olympic Basin is below normal with the Elwah River at 36%, the Dungeness River at 67% and Morse Creek at 78%. February forecasts of runoff for streamflow in the basin are for 85% of average on the Dungeness River and 90% on the Elwha River. The Big Quilcene can expect below normal runoff this summer. The Mount Crag SNOTEL near Quilcene had 11.3 inches on February 1, last year it had 7.5 inches. Temperatures were three degrees above normal for January.

For more information contact your local
Soil Conservation Service office.

OLYMPIC PENINSULA RIVER BASINS
Streamflow Forecasts - February 1, 1992

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
DUNGENESS RIVER nr Sequim	APR-SEP	98	117	130	81	143	162	160
	APR-JUL	82	98	108	82	118	134	131
	APR-JUN	62	73	81	86	89	100	94
ELWHA RIVER nr Port Angeles	APR-SEP	340	405	450	90	495	560	502
	APR-JUL	285	340	375	90	410	465	417

OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of January					OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - February 1, 1992			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Elwha River	1	57	36
					Morse Creek	1	94	78
					Dungeness River	1	86	67
					Quilcene River	0	0	0
					Wynoochee River	0	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

